Naming and Writing Formulas for Acids

## How are formulas for acids written and named?

*Acids have at least one hydrogen atom in their formula. Acids exist as solid compounds and as aqueous solutions. As solid compounds, they are named by their ions. In solution, they are named according to acid nomenclature rules. HCl(s) is named hydrogen chloride and HCl(aq) is named hydrochloric acid.*

Naming Acids

Acids are named differently depending on their ions. See the examples below.

Model 1: Examples of Acids

|  |  |
| --- | --- |
| **Molecular Formula of Acid** | **Name of Acid** |
| HI (aq) | Hydroiodic acid |
| HCN (aq) | Hydrocyanic acid |
| H3PO4 (aq) | Phosphoric acid |
| H2SO3 (aq) | Sulfurous acid |

Group Instructions: When addressing each question, one group member should be assigned the task of reading the question aloud for the rest of the group. The manager should rotate that role among group members throughout the assignment.

Questions:

1. What element do each of the formulas above contain? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which formula(s) contain the element oxygen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which formula(s) contain *ions* ending in –ide? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How are these formula(s) named?
4. Which formula(s) contain ions ending in –ate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How are these formula(s) named?

1. Which formula(s) contain ions ending in –ite? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How are these formula(s) named?

1. How are the formula(s) containing oxygen named differently from the compounds that do not contain oxygen?
2. Complete the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Acid Type** | **-ide** | **-ate** | **-ite** |
| Name starts with: |  |  |  |
| Name ends with: |  |  |  |
| Contains oxygen? |  |  |  |

1. Write the names for the following acids:
   1. H2S (aq) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. H2C2O4 (aq)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. H3PO3 (aq) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. HNO3 (aq) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. HClO (aq) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. HBr (aq) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Write formulas for each of the following acids:
   1. Hydroselenic acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Perchloric acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Arsenous acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. Chromic acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. Nitrous acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. Hydrophosphoric acid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_